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Grouse

GLEN C. SANDERSON

JOB COMPLETION REPORT

INVESTIGATIONS PROJECTS

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FEDERAL AID IN WILDLIFE RESTORATION ACT

PRAIRIE GROUSE PRODUCTIVITY DATA FROM HUNTER CHECKING STATIONS

Pittman-Robertson Project W-15-R

Job No. 17-56

M. O. Steen, Director

Nebraska Game, Forestation & Parks Commission

L. P. Vance
Supervisor of Game

Phil Agee
Project Leader

Gordon Heebner
Investigator

Report for the period

October 13 to 21, 1956

17-56

PRAIRIE GROUSE PRODUCTIVITY DATA FROM HUNTER CHECKING STATIONS

by Gordon Heebner

ABSTRACT

Three-hundred-fifty-one hunters were interviewed at hunter courtesy-stop checking stations by biologists during the hunting season. These hunters reported an average daily bag of 0.94 grouse per man, and spent 6.65 man-hours of hunting for each bird bagged.

Biologists examined 232 prairie grouse bagged by hunters. This sample consisted of 80 percent sharptails, and 20 percent prairie chickens. Prairie chickens were confined to the eastern counties of the open area where they comprised 8 to 47 percent of the bag.

Age ratios of both sharptails and prairie chickens were extremely low. The 1956 age ratio for sharptails and prairie chickens was 1.41 and .59 young per adult, respectively. This represents still poorer production than in 1955, when there was .92 young prairie chicken per adult and 1.95 young sharptail per adult in the hunter's bag. Most counties are expected to show decreased breeding populations in 1957.

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JOB COMPLETION REPORT

INVESTIGATIONS PROJECTS

State of Nebraska

Project No. W-15-R Job No. 17-56

Title of Job: Prairie Grouse Productivity Data From Hunter Checking Stations

Objectives: To determine sex and age ratios of prairie grouse, heaviest hunting concentrations, average hours spent in the field per hunter, average time of hunting per bird, and hunter success.

Procedure: Three roadside checking stations were set up at strategic points in the major grouse range during the 1956 hunting season to collect prairie grouse productivity data from hunters who stopped voluntarily. The checking stations were operated on the first and second weekends of the hunting season by department personnel.

The 1956 prairie grouse hunting season opened on October 13, and lasted nine days in that portion of the State of Nebraska which lies within and is bounded by the following highways, rivers, and lines. Beginning at the South Dakota-Nebraska state line, thence south along Highway 137 to Highway 20, east along Highway 20 to Highway 11, south along Highway 11 to the North Loup River, west along the North Loup River to Highway 7, west and south along Highways 7 and 2 to the Dismal River, west along the Dismal River to Highway 83, south along Highway 83 to Highway 92, west along Highway 92 to Highway 83, south along Highway 83 to Highway 92, west along Highway 92 to Highway 61, south along Highway 61 to the North Platte River, west along the North Platte River to Highway 26, west along Highway 26 to Highway 19, north along Highway 19 to Highway 87, north along Highway 87 to Highway 20, east along Highway 20 to Highway 27, north along Highway 27 to the South Dakota-Nebraska state line, and east along said state line to the point of beginning.

Shooting hours were from one-half hour before sunrise to sunset each day. The daily bag limit was two and the possession limit was four.

Findings: Hunting Success

A total of 351 hunters was checked by department personnel at checking stations located near Burwell, Thedford, Hyannis, Alliance, Valentine, and Bassett, Nebraska. These sportsmen reported bagging 0.94 bird per hunting effort, and spending 6.65 man-hours of hunting for each bird bagged. (Table I.)

The hunter success was not exceptional in any of the counties opened to grouse hunting. Moderate hunting was found in Garden and Holt counties on the opening weekend of the hunting season and Keya Paha,

Rock, and Sheridan counties provided fair hunting on the last weekend of the season with a daily bag between 1.5 and 1.8, while the hunting time per bird ranged from .6 to 3.4 man-hours.

All other counties in the open hunting area showed very poor success, with a daily bag of less than 1.5 birds per hunter, and hunting time ranged from 2.0 to 24 man-hours per grouse bagged.

Table I. Grouse hunting success, 1956

Counties	Number of Hunters	Man-Hours Hunted	Birds Bagged	Birds / Man-day	Man-Hrs. / Bird
Weekend of October 13, 14					
Blaine	5	22	6	1.2	3.7
Box Butte	4	24	1	.3	24.0
Brown	26	161	15	.6	10.7
Cherry	33	191	33	1.0	5.8
Garden	5	15	8	1.6	1.9
Garfield	26	175	29	1.1	6.0
Holt	14	82	24	1.7	3.4
Keya Paha	17	259	14	.8	17.0
Loup	30	200	22	.7	9.1
Rock	50	314	36	.7	8.7
Sheridan	18	67	16	.9	4.2
Total for the weekend	228	1510	204	.89	7.40
Weekend of October 20, 21					
Brown	17	119	10	.6	11.9
Cherry	22	127	22	1.0	5.8
Garfield	6	38	9	1.5	4.2
Grant	7	32	2	.3	16.0
Holt	18	125	16	.9	7.8
Keya Paha	4	12	7	1.8	1.7
Logan	3	48	10	3.3	4.8
Loup	32	147	29	.9	5.1
Rock	6	21	9	1.5	2.3
Sheridan	4	4	7	1.8	.6
Thomas	4	8	4	1.0	2.0
Total for the weekend	123	681	125	1.01	5.4
Total for two weekends	351	2191	329	.94	6.65

Species Composition of Bagged Birds

Biologists examined 232 prairie grouse during the season. Of this number 80 percent were sharptails and 20 percent were prairie chickens (Table II). The proportion of prairie chickens was highest in Holt and Rock counties where 22 and 47 percent, respectively, of the grouse bagged were prairie chickens. Other counties in which prairie chicken were taken were Loup, Brown, and Cherry.

Sex and Age Ratios of Prairie Chickens

Data concerning the sex and age composition of the prairie chickens examined during the 1956 hunting season appear in Table III. The sample consisted of 17 young and 29 adults. The age ratio was .59 young per adult as compared to .92 young per adult in 1955. This would indicate poor reproduction.

The sex ratio for the 1956 season was based on a meager sample of seven males and 34 females. This sex ratio of 0.21 male per female is still lower than the 1955 ratio of 0.53 male per female. However these data cannot be attested because several of the birds examined at the checking stations were in the process of moulting their tail feathers and consequently could not be accurately sexed.

Sex and Age Ratios of Sharptails

The sample of sharp-tailed grouse consisted of 76 adult and 107 young birds. The distribution of this sample among the various counties and the sex and age ratios are shown in Table IV.

The gross age ratio was 1.41 young per adult. The ratio of 1.95 young per adult in 1955 apparently resulted in a lower breeding population in 1956. This, followed by poor reproduction in the summer of 1956, probably accounted for low populations in the fall of 1956.

Age ratios were the highest, generally, in the western portion of the open grouse range. Cherry, Sheridan and Box Butte counties had age ratio of 2.1 young per adult. Populations in Morrill, Garden, Grant, Arthur, Keith, McPherson, Hooker, Thomas, and Logan counties showed an age ratio of 2.14 young per adult while Keya Paha, Brown, Blaine, Loup, Rock, Holt, and Garfield counties (in the eastern one-third of the open hunting area) had an age ratio of 1.17 young per adult. We may expect a decline in the sharptail breeding populations in 1957, particularly in the eastern counties.

The sex ratio of the sharptails showed 1.52 males per female. The two sexes were equally represented in the 1955 hunting season.

Table II. Species composition of prairie grouse examined during the 1956 hunting season

Counties*	Sharptails		Prairie Chickens	
	Number	Percent	Number	Percent
Sheridan	17	100	0	0
Box Butte	1	100	0	0
Garden	8	100	0	0
Grant	10	100	0	0
Thomas	4	100	0	0
Blaine	6	100	0	0
Loup	43	88	6	12
Garfield	11	100	0	0
Holt	4	18	18	22
Rock	20	53	18	47
Brown	24	92	2	8
Keya Paha	18	100	0	0
Cherry	20	91	2	9
Total	186	80	46	20

*No grouse were checked from open counties which are not listed here.

Table III. Sex and age composition of prairie chickens examined during the 1956 hunting season

Counties	MALE				FEMALE				UNSEXED		Total	Total	GRAND	Yg./	Male/
	Juv.	Adult	Uncl.	Total	Juv.	Adult	Uncl.	Total	Juv.	Adult	Juv.	Adult	TOTAL	Adult	Female
Loup	-	2	-	2	1	3	-	4	-	-	1	5	6	0.2	0.5
Holt	-	-	-	-	9	8	-	17	-	1	9	9	18	1.0	0.0
Rock	1	4	-	5	2	7	-	9	2	2	5	13	18	0.3	0.4
Brown	-	-	-	-	1	1	-	2	-	-	1	1	2	1.0	0.0
Cherry	-	-	-	-	1	1	-	2	-	-	1	1	2	1.0	0.0
Total	1	6	-	7	14	20	-	34	2	3	17	29	46	.59	.21
1955 Total	4	4	-	8	7	8	-	15	-	-	11	12	23	.92	.53

Table IV. Sex-age composition of sharp-tailed grouse examined during the 1956 hunting season

County	MALE				FEMALE				UNSEXED		Total	Total	GRAND	Yg./	Male/
	Juv.	Adult	Uncl.	Total	Juv.	Adult	Uncl.	Total	Juv.	Adult	Juv.	Adult	TOTAL	Adult	Female
Sheridan	9	4	-	13	4	-	-	4	-	-	13	4	17	3.3	3.3
Box Butte	1	-	-	1	-	-	-	-	-	-	1	-	1	1.0	1.0
Garden	3	-	-	3	4	1	-	5	-	-	7	1	8	7.0	0.6
Grant	5	3	-	8	-	2	-	2	-	-	5	5	10	1.0	4.0
Thomas	3	-	-	3	-	1	-	1	-	-	3	1	4	3.0	3.0
Blaine	1	4	-	5	1	-	-	1	-	-	2	4	6	.5	5.0
Loup	10	13	1	24	12	7	-	19	-	-	22	20	43	1.1	1.3
Garfield	2	5	1	8	2	1	-	3	-	-	4	6	11	.7	2.3
Holt	-	1	-	1	1	2	-	3	-	-	1	2	4	.5	0.3
Rock	6	4	-	10	6	3	-	9	1	-	13	7	20	1.9	1.1
Brown	5	3	-	8	3	3	-	6	4	6	12	12	24	1.0	1.3
Keya Paha	6	1	-	7	4	3	-	7	3	1	13	5	18	2.6	1.0
Cherry	6	5	-	11	3	3	1	7	2	-	11	8	20	1.4	1.6
Total	57	43	2	102	40	26	1	67	10	7	107	76	186	1.41	1.52
1955 Total	32	17		49	33	16		49			65	33	98	1.95	1.00

Weights

Table V shows that the average weight of 81 sharp-tailed grouse was 800 grams (28.2 ounces) while the average weight of 25 prairie chickens was 843 grams (29.7 ounces). Weights by individual sex and age classes are given in Table V.

Table V. Weights of sharptailed grouse and prairie chickens, 1956

Sex and Age Class	Number of Birds		Average Weights	
	Sharptails	Prairie Chickens	Sharptails	Prairie Chickens
Adult Male	19	4	827 gms. (29.1 oz.)	960 gms. (33.8 oz.)
Adult Female	10	10	771 gms. (26.8 oz.)	865 gms. (30.5 oz.)
Juvenile Male	31	1	837 gms. (29.5 oz.)	878 gms. (30.9 oz.)
Juvenile Female	21	10	732 gms. (25.8 oz.)	772 gms. (27.2 oz.)
Total	81	25	800 gms. (28.2 oz.)	843 gms. (29.7 oz.)

Recommendations: That roadside checking stations be continued throughout any future grouse seasons in the state.

Work should be initiated to establish the veracity of methods for estimating sharptail and prairie chicken ages by wing primary measurements.

Summary: 1. The average daily bag of 321 hunters interviewed at roadside checking stations was 0.94 grouse per hunting effort, and the average hunter spent 6.65 man-hours of hunting for each bird that he bagged.

2. A sample of 232 grouse examined by biologists in 1956 consisted of 80 percent sharptails and 20 percent prairie chickens.

3. The age ratio of forty-six prairie chickens was 0.59 young per adult.

4. The age ratio of 186 sharptail was 1.41 young per adult.

5. The counties in the western two-thirds of the grouse range had an average age ratio of about 2.1 young per adult while the counties in the eastern one-third showed an average age ratio of 1.17 young per adult. Reduced breeding populations are expected in the eastern counties in 1957.

6. Sex ratios showed that for prairie chickens there was 0.21 male per female and for sharptails, 1.52 males per female.

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7. The average weight of eighty-one sharptail grouse was 800 grams (28.2 ounces) while the average weight of 25 prairie chickens was 843 grams (29.7 ounces).

Prepared by Gordon Heebner
District Game Manager

Approved by Phil Agee
Project Leader

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